

Stockwell (E. H.)

CONSUMPTION,

BY

E. H. STOCKWELL, M. D.

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CINCINNATI, OHIO.

1858.

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PHTHISIS.

THE organs and functions of the human body are liable to a variety of lesions. Specific lesions receive specific names. But the one under examination—consumption, in the profession and out of it, is known by a variety of names. Some of the words by which the disorder is known, are arbitrary, while others are not. Analogies, localities and symptoms have had more to do in giving names to consumption, than its real nature. A name that would embrace the definition of the disease, would be of great service. Until a cognomen is suggested, that will embrace the essential characteristics of the complaint under consideration, the old phraseology will be used.

Phthisis signifies a wasting, a fading. *Tabes* is said to be a consuming. *Marasmus* means a wasting. *Macies* is a wearing away. *Cachexy* is a vicious state of the body. *Dyscrasia* is also a pernicious habit of the system. *Atrophy* is a want of flesh. *Scrofula* is from *scrofa*—a sow, swine were supposed to be subject to the disorder, characterized by indolent tumors, chiefly in the neck. *Coxarum* is an ulcerous disease of the hip joint. *Lumbar abscess* or *Psoas abscess*, is an abscess which occurs in the small of the back. *Tabes dorsalis* is an ulcerous disease of the bones of the back. *Tabes mesenterica* is a tuberculous disease of the glands in the mesentery. *Phthisis pulmonalis* is a consumption of the lungs. *Laryngeal phthisis* is a consumption of the larynx. *Tubercle* means a little process or roughness, and is applied to small cheesy bodies that appear in various parts of the body, especially in the lungs, and always found in the second and third stages of pulmonary consumption. *Tuberculosis* is applied to the habit or state of the constitution which produces tubercles. *Hectica* is a fever that occurs in the third stage of consumption. *Hectic fever* is the same thing. *Consumption* is a

consuming. Emaciation is a wasting of the flesh. Decline is a gradual diminution of the strength and flesh. Debility is weakness. Bad habit is a mischievous or vicious state of the constitution. King's Evil is scrofula. The Evil is the same thing. All these words stand for a common disorder. The root in all these ills is the same. It may manifest itself at different localities, it may in different individuals manifest different phenomena, and it may be of all degrees, yet it is the same deceptive disorder in all the above specifications. Paleness, emaciation, and debility are always the symptoms of phthisis, whether it manifest itself prominently at the larynx, lungs, lymphatic glands, mesenteric glands, bones of the back, hip-joint or small of the back. And when the third stage arrives—the suppurative, hectic fever will occur in all the forms of the disease. The bad, evil habit prevails in all of them. So does the peculiar tuberculous material.

A KNOWLEDGE OF PHTHISIS VALUABLE TO ALL.

STATISTICS on a large scale declare that one-sixth of mankind die of consumption. A knowledge, then, of the nature, symptoms, prevention, and remote causes of a disease so universal and destructive, must be of immediate interest and utility to all. All may be easily made acquainted with the predisposing causes of this disease. The means for the prevention of phthisis are accessible to, and capable of application by all. Much of the remedy for the relief and radical cure of consumption is hygeianic, consequently within the reach and use of every judicious person. Besides, that part of the remedy which is medicinal, must often be left to the discretion of the patient and near friends in many particulars. Again, the disease, in its nature, during its onset and first stage, is sly, insinuating and deceptive, and rarely sufficiently alarms the subject to call a physician until the second stage, when it assumes a more defiant air. And as the first stage is by far the most curable one, its first symptoms should be known by all as familiarly as household words, so that it may be met in its weakness and infancy, for it grows to gigantic strength. Fur-

thermore, the foundation of consumption, in the majority of cases, is laid during childhood, youth and early maturity, while the person is under and within reach of parental care and council, at the very time when proper advice and conduct, would nip it in the bud. Moreover, the saddest havoc of this destroyer is among the young, the beautiful and the gifted, those from whom the world expects and demands the most.

HISTORY OF PHTHISIS.

CONSUMPTION is a disease of variable climate. Regularity of weather is opposed to it, whether it be warm or cold. Sudden changes and extremes of heat and cold favor it. As the temperate belt approaches the torrid or frigid, consumption disappears. Extremes in temperature when coupled with other agents are fruitful remote causes of this disease, hence its prevalence in this latitude. It also accompanies poverty, filth, dense population, and idleness. It is associated with fear, indolence and sentimentality. Civilization often encourages it. Barbarism enforces upon its subjects air and exercise, but civilization often fosters ease, idleness, confinement, the indifferent effeminate qualities of the mind, sickly imaginations, and unbridled passions. When it developes dim tendencies into sentiments, sentiments into ideas, and ideas into abilities, then it antagonizes the tubercular diathesis. But while it does this to the budding democrat, it frequently in the seedy democrat, sinks ability in ideas, ideas in sentiments, and sentiments in less than tendencies, and as a consequence breeds in the blood the cachectic evil.

Occupation does something for Phthisis:—

Varnish Painters,.....	37	Carpenters,.....	9
Tailors,.....	14	Blacksmiths.....	9
Engravers,.....	14	Slaters,.....	9
Printers,.....	14	Agriculturalists,.....	9
Clerks,.....	14	Butchers,.....	5
Polishers,.....	12	Bleachers,.....	5
Plasterers,.....	12	Dyers,.....	5
Sculptors,.....	12	Watermen,.....	5
Stone Cutters,.....	12	Gardeners,.....	4
Watch Makers,.....	12		

By this table it will be seen what per cent. in the above occupations die of tubercle. Gardners are the least liable to it.

At what period of life does consumption number the most victims? Louis' observations in 123 cases, give the following:— from the age of 15 to 20, he met with 11 deaths; from 20 to 30, he met with 39 deaths; from 30 to 40, he met with 33 deaths; from 40 to 50, he met with 23 deaths; from 50 to 60, he met with 12 deaths; and from 60 to 70, he met with 5 deaths. Dr. Passavoine's observations in 920 cases of death among children, (532 girls and 388 boys,) who died from the age of 2 to 15, 538 were consumption. In childhood and youth, consumption slays its greatest number; the next period is between 20 and 30. By these observations it will be seen that consumption is not confined to any period of life, yet it prefers youth and early maturity.

What is the duration of consumption in a given case? Louis' observations in 314 cases, give the following: 34 died within 3 months; 69 died within 6 months; 69 also died within 9 months; 32 died within 12 months; 43 died within 18 months; 30 died within 24 months; 12 died within 36 months; 11 died within 48 months; 5 died within 5 years; 1 died within 6 years; 3 died within 7 years; 1 died within 8 years; 3 died within 10 years; 11 died within 40 years; and one died within 54 years. The average time has been computed at two years.

Louis' observations enabled him to assert that after the age of 15, if tubercles occur at all in the body, their presence in the lungs is certain; that the deposition of tubercles occurs first at the apex of the lung; that consumption is more frequent in women than in men; that pneumonia is more easily resolved in the consumptive lung than in the healthy; that bronchitis commences at the base of the lung, and that chronic peritonitis indicates pulmonary tubercle.

THE STAGES OF PHTHISIS.

CONSUMPTION has three well marked stages. There are three epochs in its alarming career. They are easily distinguished by the physician. They are the First, the Second, and the Third, or

the Forming, the Depositing, and the Softening or Ulcerous. The vicious state of the body which forms or begets the material called tubercular, is the First or Forming stage. This stage may be of short or of long duration. It is obscure, deceptive and dangerous. During this stage vigor is lost by piecemeal, beauty vanishes by secret doors, robustness disappears as by mystery, and symmetry departs by hidden ways. Its progress is not marked by days, nor by weeks, nor hardly by months, but by years. This stage occurs prior to tubercle in any organ. And it is this stage that marks the real nature of the disease. He who would correctly understand Consumption must study profoundly the First stage. For, afterwards appear complications that well nigh overshadow the *real* disorder. The deposition of tuberculous matter causes *local* derangements which have been taken for the root of the disease. A dangerous mistake! He who looks at this fearful evil to the body, from the tubercle, will be surrounded by darkness, and be without a light for the direction of his course. Tuberculous matter is formed in the general vascular system, especially in the lactiferous, lymphatic and venous half, but more especially at the point where arterial blood is born—where the pulmonary artery pours its tide into the pulmonary vein. From the head of the arterial blood, it passes to all parts of the system, and repeats its career through the sanguiferous channels, times without number; and finally, its natural outlets being closed, it escapes from the vessels at their weakest points, by transudation into the meshes of the tissues. Even then, if there is a suppurating surface in the system, or if one can be easily made, the tuberculous matter will tend to that point, and escape through it for months and even years, before it will escape by the pores of the capillaries into a vital organ.

The Second or Depositing Stage creates new features—complications—local phenomena. Phthisis generates a specific material called tubercle, because of its shape. It is cheesy in appearance, and constitution; and when this product is deposited upon any membrane, into any organ, from the vessels, the deposit introduces the Second Stage. This may continue a longer or a shorter time, depending upon the vigor of the body and the extent of the vicious habit. This deposit assumes various shapes, according

to the locality and the motion of the part. It may be granular or tuberculated ; it may be gray or yellow ; it may be aggregated or scattered. It may be conjectured that the gray tubercle results from the old albumen that should have escaped at the surface and lungs, and that the yellow tubercle is from the non-developed blood. If so, in the history of the two, the hard minute tubercle would occur first, and if the other did not soon follow, it might remain as a grey tubercle for years without mischief ; but if the yellow tubercle soon follows it, then it would be liable to dissolution. The yellow tubercle indicates a still-born state of the blood, while the grey simply indicates the retention in the blood, of what should have passed away with expirations and perspirations. If the evil habit which causes the tuberculous material, be eradicated after the deposition of tubercle, the tubercle may be absorbed, or it may remain in a latent state through life, and produce comparatively no mischief. The tubercle is unorganized, and a foreign substance and always causes more or less irritation, and occupies space which should be possessed by healthy tissue. The morbid irritability which is a prominent feature of consumption, in all of its stages, is enhanced by the mere tubercle, and there is generally much abnormal irritation in its neighborhood, caused by its presence.

The Third Stage is marked by the hard cheesy tubercles softening, suppurating, ulcerating. If the tubercles be in the center of an organ and aggregated, a cavity will be the result of their dissolution, and the cavity is called a vomica ; if it be upon the mucous membrane, the ulceration will be superficial, and no observable cavity may be the result ; and if the tubercles are sparsely scattered in the substance of the lungs, the cavities resulting from their softening will be small, and perhaps too small for detection. This stage may arrive when there are but few tubercles in a lung, and such may be cured, though the last stage has arrived. Every Third Stage case does not possess the same amount of tubercles, and this is the reason why some in this stage are curable, and why others are not. If both lungs are filled with tubercles and they soften together, the aerating membrane is destroyed, and respiration is impossible, no matter who is present or what is given. And because some such cases do occur, and

are beyond help, the hasty in opinion, declare that every case that arrives at the Third Stage is incurable, and more, that a case is not consumption that does not reach the Third Stage, that does not fill both lungs with tubercles, and that does not end in death. Such minds perhaps had better be indulged in their seedy notions. The Third Stage is marked by hectic. Pus is the general cause of this fever in consumption. It may result from severe irritation. And as pus is not developed in the First nor Second stages, but is always in the Third, Hectic is restricted to this stage, unless caused by severe irritation, abscess in pneumonia or ulceration in bronchitis. If inflammation as a complication, nor severe irritation does not occur in the career of consumption, then hectic fever will not occur until the Third Stage.

In contending with this giant of a disease, the pernicious state present in the First Stage, is the one for the physician to ever keep in mind, and is *the* condition that must be combatted by medication, and not the tubercle, nor the ulcer. They are but results of a prevailing morbid habit. The morbid anatomy is caused by a morbid physiology which constitutes the disease to be fought, to be routed, and to be vanquished; and until then will the disease advance with haughtiness and power, in spite of drug and doctor.

THE SYMPTOMS OF THE FIRST STAGE.

THE symptoms of phthisis are divided into rational and physical. The physical are obtained by auscultation and percussion, and the rational are those obtained through all other channels. The physical signs are restricted to the Second and Third Stages, because organic lesions do not occur in the lungs during the First Stage.

There is a ready susceptibility to the changes of temperature. The body is easily oppressed by heat, and easily chilled by cold. The skin is feeble; it is inclined to paleness. Its action is variable; there is no permanency in its vigor. When exposure comes reliance cannot be placed in its resistance. Its susceptibility is morbid. The feet, hands, tips of the ears and nose are

quickly cooled. The power of the air is greater than that of the cutis. The person feels that he is the minor force. The skin demands protection from the atmosphere, yet the struggle between the air and skin is often equal, sometimes the latter for a while may be more than equal, but generally the former is the superior force. Steady, insensible perspiration is wanting.

Respiration is unsatisfactory. There is something lacking in each breath. Full benefit is not experienced by breathing as heretofore. A prolonged and voluntary inspiration is often resorted to, to realize full satisfaction from the air. Absorption and elimination at the lungs—aeration, are not equal to the wants of the system. And the unsatisfactory feeling from breathing gradually increases.

The throat is pale or cineritious, or patchy, or mottled, or granular, or heavy or sluggish. The breath has a sweetish, sickly smell. The sputa is scanty, frothy, adhesive. The cough, if any, is dry, hacking. And there is shortening of breath on exercise, especially during the ascension of heights, as stairs and hills.

There is a prevailing lassitude. Exercise soon brings exhaustion. Fatigue follows labor, and chillings follows fatigue. Two states that should be carefully guarded against. Fatigue and chilliness constitute the folding doors out of which the life of the consumptive passes. Elasticity of muscle is waning. Eating and sleeping do not bring their accustomed refreshment. There is tiredness in the morning. The meal does not restore the animal spirits. Fondness for exercise is declining. There is hope and confidence, but they are inoperative and without works. There is an ebbing of action, enterprise, fortitude and courage. A growing tide of indifference and inertia is advancing upon the individual.

The blood gravitates towards the mucous membrane, especially towards the mucous tunic of the air passage. The cutis loses in blood as that to the mucous membranes increases. The blood in rate of movement through its channels is perceptibly increasing. Though no one week will evince the more frequent movement of the blood, still extremes of longer time will indicate it. The pulse is more frequent yet less vigorous. The augmented speed

is a sign of weakness. The respirations per minute are growing in frequency, shortness and scantiness. The appetite is apparently good, yet the relish of health for food is departing. And the bowels are gradually running into sluggishness.

If the person has a hæmorrhagic habit, or if there is a deficiency of fibrine in the blood, there may be in the First stage spitting of blood; for the mucous membrane of the air passage though free from tubercles, nevertheless, is turgid with blood, and this condition may lead to hæmorrhage. If it does occur it will be passive, and serve to disgorge the embarrassed vessels.

The augmentation of circulation may be so great as to amount to a fever in this stage. If it does, it is remittent. Flashes of heat are very common. The fever will be preceded by chilliness, and followed by perspiration.

There may be an issue, a leakage somewhere in the system, and if so, the consumptive state will be greatly obscured by it. The local suppurating surface, for the time being, eliminates the specific material which the tubercular diathesis generates, and though the cachetic is present, the nocent material being eliminated, as fast as formed, by the issue, the peculiar phenomena consequent upon its retention in the blood, and carried a thousand times through the system, are to a great extent obviated. The issue may be a fistula, or an old catarrh, or a long standing leucorrhœa, or an ulcer in the skin, or an old expectoration, or a cutaneous disorder. Such issues easily throw off stale albumen, and often take on a part of the functions of the skin and lungs, at least so far as the removal from the system of decaying albumen, and this is the reason why the system rights itself so poorly, after having an old ulcer healed upon it. And if such issues exist at the time of consumption, they become doors for the escape of old perspirations and expirations—of tuberculous material, and not only obscure the forming stage, but prolong it, and postpone the second and third. In one sense issues may cause consumption. After their long establishment, they vicariously, relieve the lungs and skin of their office of discharging from the blood, vicious albumen. In the mean time this material by habit tends to the issue, and not to the natural outlets for it, they become torpid from inaction, and when the issue is healed,

care not being bestowed in the meantime upon the skin and lungs, they do not readily take on their old office, and the stale albumen accumulates, and soon interferes with the blood making processes, and all the fluids become contaminated, tuberculous material is formed and depositions occur.

There is not necessarily any pain associated with this stage, nor inflammation. If they do occur they are adventitious. Yet there may be in this stage, much bronchial irritation and inflammation and cough, but they are, when occurring, complications, and not legitimate results from this stage of the disease.

Paleness, emaciation, and debility, at first and for some time scarcely observable, yet gradually augmenting, are legitimate consequences of this disease.

The physical signs of this stage are not of any value. There is no dulness on percussion nor any change in the voice or breath, except perhaps a feebleness in the respiratory murmur.

THE SYMPTOMS OF THE SECOND STAGE.

ALL of the legitimate symptoms of the First stage are augmented in the Second, but the characteristic features of this epoch spring from local causes that constitute the great complications of the disease. The tubercular material which the First stage concocted and generated, which has been circulating through the system, times without number, is now escaping from the vessels in virtue of their augmented permeability from weakness and overdistention, and depositing itself upon the mucous surface of the air passage, in the air cells, and in the meshes of the lungs, or elsewhere. As this morbid, stale, unorganized material escapes from the vessels, it is liquid, composed of a fluid and solid, the former is serum, and the latter is albumen, the first is soon reabsorbed, while the second is left to concrete. The shape of the concretion depends upon the place where it is lodged and the motion of the part. Sometimes it is granular, or tubercular, but this is accidental. The blood is composed of a fluid and a solid portion, the former serving as the solvent of this latter.

That property of the serum which enables it to hold in solution the albumen and fibrine of the blood, is alkaline, and the particular alkali is believed to be ammonia. This is volatile, and when the blood or parts of it, escapes from the conservative influence of the blood vessels, the fluid constituent of the blood loses its solvent power over the solid constituent, by the supposed volatilization of the ammonia. The serum is reabsorbed back into the circulation, but the albumen is left behind, to breed mischief and perhaps death.

In this stage, the skin and pulmonary lining membrane, are ten-fold more embarrassed than in the First stage. The depositions are lifeless, incapable of vitalization, and hence foreign substances; but are for the time preserved from decomposition by the conserving power of the body. Yet they enthrall the tissues in which they lie, by depriving them of their natural room, by augmenting the weight of the part, by their dead condition, and by their abnormal irritation. The irritation, gravity, and incapacity of the lungs are augmenting. The cough is generally harsher, dryer and more severe, though the dryness of the cough will depend upon the absence of inflammation in the mucous membrane. The tubercles may throttle the small pulmonary veins, and prevent the blood from moving through the lungs, on to the heart and general system, and if so, the blood will accumulate, the capillaries of the vessels thus corded, and effusion of blood into the bronchial tubes, and expectoration of blood, will be the consequence. This form of hæmorrhage is passive and will be serviceable to the engorged, incarcerated vessels. If the case is one of the mixed variety, the expectoration may be copious. The expectoration of the First and Second stages, depends wholly upon the inflammation of the bronchial membrane, which is not necessarily a condition in these two stages of consumption, though it often obtains. Dyspnœa—difficult breathing, is a necessary consequence of tubercles in the lungs, provided their amount is sufficient to interfere much with the capacity for inhalation. The augmentation in the rapidity of respiration will depend upon the same cause, unless fever is present. The rate of pulse and that of respiration correspond. Hasten one, and the other will be increased. In this stage they are generally frequent, that of res-

piration about 23 per minute, and pulse about 100 per minute. Emaciation is well marked, so of paleness and debility. The symmetry of the body is fast departing. The shoulders are falling forward upon the chest; the spine and head droop, and if there has been pleurisy, there is a distortion in the chest at the apex. The ends of the fingers may be bulbous and the nails very convex. The sclerotic coat of the eye may be very white. The gums are bordered by a red narrow belt. There may be severe night sweats, though this symptom may occur in each stage; quick exhaustion or exercise; variable appetite; costive bowels; pale skin, and turgid state of the air passage. There may be in this stage, albuminous or purulent expectoration, but if so, it is no evidence of the softening of tubercles, but suppuration from inflammation in the mucous membrane, a prominent feature in bronchitis.

Among the rational symptoms of this stage, upon which most dependence may be placed, are paleness, emaciation, debility, increased pulse, increased respiration, difficult breathing, red border of the gums, and diminished calorification.

The physical signs of the Second stage are a prolongation and augmentation of the expiratory murmur, and a shortening and diminution of the inspiratory murmur; a jerking inspiration; senile inspiratory murmur; sibilant or sonorous rale at the apex of the lung, provided there is a chronic habit, and the vesicular murmur is elsewhere; bronchial inspiration; tubular inspiration; pectoriloquy; bronchophony; any change at the apex of one lung and not at the other in the respiratory murmur; any change in the resonance of the voice at one apex and not found at the other; the pulmonary crumpling sound; the absence of the thrill on one side and its presence on the other, and dullness on percussion.

THE SYMPTOMS OF THE THIRD STAGE.

HERE is a fresh complication. There has occurred the diathesis that created the tubercular matter; and that material has been deposited and it has remained as a concretion a longer or shorter

time; but now decomposition in the tubercle occurs; it is not only dead, but dissolution is rapidly going on in it. The Third stage is the one of Dissolution to the tubercle; the Second stage is the one of Burial to the tubercle; and the First stage is the one of Birth to the tubercle, though in fact of Death to the blood. This dissolution does not take place in the tubercle, unless the conservative influence of adjacent parts is much diminished. And this removal of the vital influences of adjacent parts from the tubercle, is brought about by inflammation. The nocent influence of dead material upon capillaries is often, yes generally sufficient to the diminution of their tone and circulating energy; the *vis a fronte* is reduced or suspended, and the *vis a tergo*, remaining perhaps the same, causes an afflux into the place of weakness, and accumulations, congestions, stagnations, extravasations and infiltrations follow. By these means the vitality of the part is lessened, the conserving power is diminished, and sufficient decaying elements are mingled with the already dead tubercles, to commence and to rapidly accomplish the dissolution of the tubercles. This softening then of the concretions is started and pushed through by inflammation about them. And this inflammation is Pneumonia. It may be, and generally is, restricted to the immediate neighborhood of the tubercle. The tubercle if it softens, has finally overcome the conservative influence of immediate tissues; inflammation follows; also suppuration of immediate tissues and dissolution of tubercles; the fluid mass escapes into the bronchial tubes, from thence it is carried off by expectoration. Suppuration is to the blood what ulceration is to the tissues, yet they are sometimes used synonymously. When a part dies by layers, one following the other successively it is called ulceration; and the breach is called an ulcer; but when a section of an organ dies, the lesion is called an abscess, or a vomica; the latter term is applied to the cavity formed by the softening of a bed of tubercles in the lungs. The pus from the decay of blood and the solution of the tubercle is pernicious to the system, especially if any part is absorbed into the vascular system, and causes great irritation and hectic.

The new features then of the third stage are Pneumonia, Dissolution of tubercles, Cheesy expectoration, Vomica, and

Hectic fever. All of the characteristics of the Third stage, spring from the softening of the tubercles. And as a consequence the features of this stage are local or proceed from the local mischief.

The features of the First stage are universal and constitutional, while the features of the Second and Third stages are local. The first throws light upon the second, the second throws light upon the third, and the third only upon the phenomena that result from it.

The rational symptoms of the Third stage are colliquative diarrhoea; difficult swallowing called dysphagia, because of the connection between the pharynx and larynx, the latter at the time being ulcerated; a difficulty in speaking, termed dysphonia, caused by an ulcerated state of the larynx; a want of voice, called aphonia, caused by an ulcerated larynx; pain and burning in the larynx, caused by ulcers in the larynx; want of uniformity in the positions of the nipples, for in this stage, the pleura is often inflamed, adhesions follow between the pleura and lungs, and they distort the chest and change the position of the nipples; a depression about one clavicle that is not about the other, for the reason just given; a want of uniformity in the positions of the shoulder blades, for the above reasons also; hectic fever; great suffocation caused by the discharges into the air pipes; ragged, flocculent, cheesy, nummulated sputa, and severe paroxysms of chills and fever.

The physical signs of the Third stage, are a permanent local crepitous rale at the apex of a lung; cavenous breathing; a gurgling; coarse crepitations; metallic tinkling; amphoric respirations; clicks; metallic echo, and the blowing respiration.

THE VARIETIES OF PHTHISIS.

THE facts are sufficiently numerous to justify four varieties. They are the Acute, the Chronic, the Unmixed, and the Mixed.

The Acute variety runs its course in a few weeks or months. The reason of this lies in the suddenness and intensity of action

of the remote causes. They are so concentrated and so potent, as to bring the system at once under their controlling influence, immediately begetting the consumptive habit, and pushing it rapidly through its stages, causing death in a short time.

The Chronic variety may be years in passing through the three stages. In this variety, the vigor of the system is almost equal to the remote causes. Their encroachment upon the system, at first, is slight, and only overcomes it by a persistent and extended struggle. In the Acute, the onset is terrific, while in the Chronic it is almost indifferent; in one variety the stamina is at once broken down, while in the other it is spun out into years.

The Unmixed variety is rare, and as often, confounds patient and physician. In this variety, the disease pursues its legitimate career. It keeps from side issues and complications. It aims to represent the career of consumption without the air of morbid sensibility, inflammation, etc. It seems to be jealous of other ills, and desires to go through the various stages simple-handed and alone. There is no inflammation but that which occurs about the tubercles when they are softening. There is no bronchitis, no pleurisy, no peritonitis, nor no pneumonitis until the Third stage. The cough is slight, often none, the expectoration for the First and Second stages is scanty; the night-sweats, the pain in the chest, the difficult breathing, and the evening fevers, are almost wanting. The generation and deposition of the tubercles occur without exciting much morbid irritability. They occur under guise, lie in ambush until softening, and then spring upon the individual with Indian ferocity, bathing arrow and hatchet in the life's blood, and brandishing them reeking with the crimson tide.

The Mixed variety is generally met with. So often do the Chronic and the Mixed varieties appear, and so rare are the Acute and the Unmixed, that many doubt the occurrence of the latter at all. In the Mixed variety, the morbid susceptibility is very great, causing severe irritations; frequent, early and late inflammations, and of course, cough, expectoration, pain, night-sweats, fever, chills, etc.

PREDISPOSING CAUSES OF PHTHISIS.

THEY are whatever permanently undermines the vigor of the constitution. They are hereditary vices, repeated fevers and inflammations, diseases poorly treated, recessions of cutaneous disorders, repeated fatigues, sexual excesses, excessive labor, foul air, living in dust, mental depression, indolence, long confinement to shade, living for a long time upon poor food, insufficient clothing, sudden closing of issues without attention to the eliminating organs simultaneously, fear, want of determination, stagnant air, excess of eating after fasting, repeated sudden transitions from heat to cold, sudden cooling of the body after exercising, sentimentalism, gloom and sickly imaginations.

THE IMMEDIATE CAUSES OF PHTHISIS.

MUCH agreement obtains among medical men respecting the remote causes of consumption, but respecting the immediate causes among them, there is much disagreement. Without enumerating the various theories, we at once give our own, leaving the arguments for its substantiation for the chapter on the Nature of Phthisis. One of the immediate causes of consumption is an enervation in the whole nervous system, and especially in the respiratory system of nerves; or more explicitly, a deficiency of Nervous Force, or Electricity, in the nervous fibres of the general body, and especially of the respiratory section.

The nerves of impression which belong to the respiratory circle, originate in the entire mucous membrane of the air passage, in the skin of the face, head, neck, shoulders and chest. The nerves of innervation which belong to the respiratory circle, end in the muscles of respiration. The respiratory ganglia are situated in the corpora restiformia of the medulla oblongata, and they receive the centripetal, and give off the centrifugal nerves of respiration. The ganglia are sources of force. The nerves of impression are conductors of influence to the ganglia, and

serve to arouse them to action. The nerves of innervation are conductors of the force generated by the ganglia to the respiratory muscles. But these nerves of impression and innervation, are rendered *conductive* not by the papillæ, nor by the ganglia, but by the electricity of the atmosphere.

The blood vessels are receptacles of digested food ; the red cells are receptacles of oxygen from the air, and the nerves are the receptacles of atmospherical electricity. Deprive the nerves of electricity, or the red cells of oxygen, and they become inoperative, as surely as the stomach when deprived of food. Man feeds on oxygen and electricity indefinitely more than he does on bread and meat. These he requires only occasionally, but those are demanded by him at every inspiration. Electricity is to the nerves what air is to the lungs, and food is to the stomach. The nerves obtain this electricity from the atmosphere, through the lining membrane of the air passage, and through the external surface. As long as these two membranes are healthy, so long will the centripetal nerves obtain from the atmosphere the electricity that they and the centrifugal nerves require, to render them conductive. But in consumption they are lacking in this celestial food. The nerves in consumption are hungry. Their electrical leanness prevents them from performing their offices of impression and innervation sufficiently. Impressions and innervations are alike feeble and morbid, and as a consequence, ganglionic and muscular action is marked by feebleness and irregularity.

But there is another proximate cause. This is a deficiency of oxygen in the entire blood, and especially in the red cells. The consumptive then is wanting in two atmospherical elements—Electricity and Oxygen. Oxygen as usual does not get to the blood. The red cells are hungering for oxygen, as the nerves are for electricity.

A deficiency of these rich atmospherical elements, the receptacle of one being the nerves, and the receptacle of the other being the red cells, is the immediate cause of consumption. The cause is a starvation—a lack of aerial food. It is not positive, but negative. It is not something from without ; nor is it a hereditary something, but a deprivation of oxygen and electricity.

The office performed by the electricity received by the nerves

from the atmosphere, has been pointed out ; it renders the nerves *conductive*. But the offices performed by oxygen, received by the red cells from the atmosphere, have not been specified. These offices are, the complete transmutation of chyle into arterial blood, calorification in the capillaries, disintegration of the ganglionic cells, and the disintegration of muscular cells. The blood is not fully vitalized until it meets the oxygen at the lungs, the carbon is not oxidized until it meets the oxygen in the capillaries, the ganglia do not act independent of oxygen to disintegrate them, and the cells of muscles do not act in the production of tone and contraction, without oxygen to disintegrate them also. A want of electricity then will interfere with the transmitting power of nerves, and a lack of oxygen will interfere with the blood-making process, with calorification, with ganglionic action, and with muscular action. And these offices are the essential offices to life. Interfere with them, and you interfere with life. The consequences then of these deficiencies of oxygen and electricity are seen in the states, phenomena and facts that appear during the career of consumption.

Some suppose that the cause of consumption is a deficiency of some of the elements of the food received by the stomach. But this is a mistake. The food eaten by the consumptive is the same as that eaten by the healthy. So it may be said of the air, but the air does not reach the blood of the consumptive in sufficient quantity. To be sure the air around the consumptive is the same as that around the healthy person, but they do not receive it alike. Between the consumptive and the air of heaven, there is a stubborn barrier, upon which man depends much more than he does upon the food of the breakfast and dinner table. And what is of great satisfaction, we know what that barrier is, and often what will remove it. The permeability of the aerating membrane in consumption is diminished by the gravitation of blood to it, by turgescence, heaviness, thickening and embarrassment. Also, there is a barrier in the skin, that prevents the blood and air from meeting there. And this barrier is known, and often the remedy that will remove it. The barrier is not the same as at the aerating tunic, but the opposite. Here is not turgescence, but an exsanguine state. The mucous tunic of the

whole body, and especially that of the air passage, is overloaded with blood, and this excess is at the expense of the blood of the skin. The lungs are water-logged, the cutis is upon the beach, the nerves are windless, and the red cells are without provisions. This is the condition of the consumptive. Excess of blood to the lungs prevents full respirations, and a deficiency of blood to the cutis, prevents natural perspiration. The first faulty functions in the consumptive are respiration and perspiration. And they are faulty from opposite causes, one from excess, and the other from a deficiency. Both depend upon an insufficiency of oxygen and electricity. Restore them by any means, and respirations will become long, deep and copious, and perspiration will become steady, insensible and persistent. As long as the oxygen and electricity are furnished to the system according to its wants, so long will the functions of the lungs and skin be maintained. Not only are the healthy play of the lungs and cutis necessary for the reception of oxygen and electricity, but oxygen and electricity are necessary to the normal action of the perspiring and aerating membranes. Remote causes are often sufficient to pale the skin and to gorge the mucous membrane, and if they are allowed to continue and keep up the recessions from the cutis, the barrier will be erected which intercepts the embraces of air and blood at the lungs and skin, which interferes with respiration and perspiration, which prevents the incoming of oxygen and electricity, and inaugurates the consumptive diathesis.

THE NATURE OF PHTHISIS.

By the word nature, we mean the definition or characteristics or pathology of Phthisis. The nerves are poorly supplied with electricity from the atmosphere; the blood is poorly supplied with oxygen from the air; respirations are interfered with; perspiration is checked; the aerating membrane is diminished in permeability; the cutis is lacking in blood for its functions; the blood avoids the cutis and tends to the mucous membrane; the products which should be eliminated by expirations and perspiration

are, to a great extent, retained within the blood ; the whole blood becomes contaminated by their retention ; the blood is foul from old breaths and sweat ; this defilement of the blood interferes with the blood-making process ; good blood is not elaborated, but still-born blood ; still-born blood and stale elements fill the blood with vicious material ; the pabulum requisite for nutrition, secretion, calorification and disintegration is not manufactured ; these great processes are diminishing ; the evil products hourly accumulate ; the capillaries of the whole system become feeble ; they readily allow accumulations, over-distention, extravasation and infiltration ; the stale, nocent material escapes from the blood vessels into the meshes of the tissues ; it forms tubercles ; they embarrass and aggravate the organs in which they are deposited ; by their foreign influence they soon overcome the vital properties of adjacent vessels, and decompose ; their dissolved material falls into the air-tubes, and is expectorated, leaving frightful lesions, and causing the fearful hectic.

Constituents of Sweat—

Acetic Acid,	Lactic Acid,
Oxalic Acid,	Formic Acid,
Butyric Acid,	Chloride Soda,
Chloride Potassa,	Muriate Ammonia,
Phosphate Soda,	Phosphate Potassa,
Oxide Iron,	Sulphate Ammonia,
Water 11 gr. per minute,	Stale Albumen 100 gr. per day.

Constituents of Expirations—

Carbonic Acid,	Nitrogen,
Ammonia,	Phosphorous sometimes,
Water 7 gr. per minute,	Stale Albumen 24 gr. per day.

Constituents of good Inspirations—

Oxygen,	Electricity,
Nitrogen.	

To a limited extent, the same elements enter the system from the air through the cutis.

Thus it may be seen what results to the blood whenever the pulmonary membrane and cutis lose their eliminating power.

Foul products, at every pulsation, are marching up from the recesses of the body, to the lungs and skin, for elimination, and the atmosphere is sweeping their outer surfaces for the reception of the products at the same time. Besides, as the heart sends the blood to the lungs and skin, for the purpose of eliminating mischievous elements, the air has in its bosom what the blood demands, to render it equal to the wants of the body. While the air is sweeping every cell of the lungs and the entire skin, it is giving to the blood its most important constituents. While a scavenger, at the same time, the noblest cup-bearer, bearing from the skies nectar and ambrosia to the occupants of earth.

Specific functions in blood-making—

Digestion,	Absorption,
Circulation,	Assimilation,
Sanguification.	

Specific functions in blood-consumption—

Secretion,	Nutrition,
Calorification,	Disintegration.

Specific functions in blood-purification—

Perspiration,	Expiration,
Hepatic Secretion,	Renal Secretion,
Intestinal Secretion.	

In the history of these functions, blood-making occurs first; afterwards occurs blood-consumption, and finally blood-purification. During the consumption of blood, two of the sub-functions defile the blood, they are calorification and disintegration. And because of this defilement, are instituted the purifying functions—expiration, perspiration, hepatic secretion, renal secretion, and intestinal secretion. Connected with the vascular system there are five eliminating organs. One of which is wholly exporting—the renal, but the others are importing while they are exporting. The intestinal canal secretes and absorbs; the liver not only secretes bile, but it receives all that is taken up by the gastric and intestinal veins from the digestive tube; the lungs are inspiratory as well as expiratory, and the cutis is equally

double in its action, for it absorbs and perspires. And the state that suits and favors one office, does equally the other office.

The mucous membrane of the digestive tube, the aerating membrane of the lungs and the cutis receive the material out of which blood is made. These three membranes are permeable to gases and fluids. Their pores are minute, and to render any substance capable of absorption by them, it must be in size less than the pores in their membranes. The air being finely divided, it requires no digestion for reception by the lungs and skin. Both readily pick it up when they are normal. But much of the food that enters the stomach is coarse, and requires before absorption is possible, thorough solution, hence the salivary, gastric, pancreatic and enteric juices. Each secretion having a gland for its formation. And as the food enters the canal, each gland pours into it a solvent for the digestion of some one of the elements of food—starch, albumen or oil. These menstrua act upon the starch albumen and oil, and dissolve them; they are then rendered capable of absorption by the lacteals and capillaries of the veins, also capable of being circulated by the blood vessels.

As soon as the food is digested, absorbed, and commences to circulate in the lacteals, or lymphatics, or veins, cells are furnished to the fluid mass thus moving, by the mesenteric, lymphatic and other glands, and the moving chyle thus furnished with cells, immediately begins to evince *vital* properties, and this introduction of the chyle into life, by the cells from an inanimate to an animate state, is Assimilation. The fluid is now not chyle nor blood, but something that approximates to blood. The fluid thus acquiring vital qualities, moves on towards the lungs by the heart and pulmonary artery, and soon reaches the aerating membrane of the lungs, when and where it receives from the atmosphere what enables it to become blood, fit for all the wants of the organism, and this is Sanguification or Aeration. The blood is now perfected, rich in every desirable quality. It then leaves the lungs by the route of the pulmonary veins, and goes to all parts of the body.

Food, water and air finally make red, rich blood. They do not become so at once, but by degrees. The steps in this important work are—prehension, mastication, salivary solution, deglutition, gastric solution, hepatic neutralization, pancreatic solution, ente-

ric solution, absorption, admixture, circulation, assimilation and aeration. These are the progressive steps of aliment to blood. Leave out any of them, and the next cannot be taken, especially any one of the higher steps. Two of these steps are vital; they are assimilation and sanguification. The last step is taken at the lungs, and it depends upon the permeability of the aerating membrane. But in consumption, this permeability is interfered with. The lungs are enthralled by too much blood, and by feeble capillaries, while the skin is suffering from anæmia. A barrier more or less potent intervenes between the ascending blood and the air; at the same time foul expirations and perspiration are retained with the blood that is incomplete, because it cannot reach the air. These two facts, viz.; the rapid accumulation in the blood of refuse acids, alkalies, salts, albumen, etc., and the growing deficiency of oxygen and electricity from the air, so defile, retard and impoverish the blood, as to literally prevent, gradually, sufficient aeration for life, and likewise assimilation, and finally every important function. The result is, that blood is not to a sufficient extent manufactured, though the material that should have been made into blood, remains in the vessels, not as vitalized material, but as still-born blood, blood without sufficient life to enable it to be used by the processes of secretion and nutrition, and *this* with the *old albumen* which should have been eliminated by the skin and lungs, for they are the *only* outlets of stale albumen in the body, gradually accumulating, going the rounds of the circulation, times without number, if there is no suppurating surface, finally ooze through the weak walls of capillaries, and are deposited upon mucous surfaces, into air-cells, into the meshes of the lungs, upon serous surfaces, and into other parts of the body, in a fluid state, subsequently the serous portion is removed by absorption, and the solid part remains and concretes and assumes such shapes as the make of the part with its motion may give the plastic deposit. And this deposit is called Tubercle, which is nothing but old, stale albumen and still-born blood, that have escaped from the circulation by permeation into the tissues, because the natural outlets for the removal of such material are closed or nearly so, there being no other way of escape, unless there is at the time a suppurating surface. Such

is the nature of consumption and the origin of tubercle. The nature of a disease being given, the remedy may be discovered.

THE HEREDITARY FEATURE OF PHTHISIS.

IN one sense consumption is hereditary, and in another it is not. The idea prevails that something,—germ, seed, or morbid material, is transmitted from the parent to the offspring, which remains with the child for a longer or shorter period, latent, and when certain circumstances occur, it becomes active, and lays waste the system. In this sense there is no transmission. Nothing positive or real is inherited by the child from the parent. The offspring from the very moment of conception possesses its assimilation and aeration, that is, it elaborates its own blood. The blood as such of the parent in utero does not pass to the fœtus, but such material as is capable of being wrought into blood by the fœtus. But instead of evil germs being inherited by the offspring, a certain conformation may be inherited. There may be a feeble skin, a morbid susceptibility, and an aerating tunic inclined to turgescence inherited. A want of symmetrical stamina may be transmitted. Certain qualities of the mind, as a lack of determination, a want of character, a morbid sensibility, an inclination to sentimentalism, a bent of mind to despondency, a reticacy that evades the active rough scenes of life, a submissive spirit, fear and an absence of fortitude, may be inherited. And if so, they will directly mould the body into their likeness. As the will, so the body. A firm will makes a sinewy body. The body is literally the receptacle of the mind, as much so as the air is a receptacle of the beams of the sun.

The conformation inherited favorable to the development of consumption, must be a feeble cutis, a circulation that readily gravitates towards the pulmonary membrane, and an aerating membrane easily enthralled. Such a conformation will when repeated exposures, excesses, hardships, and carelessness come, favor cutaneous weakness and pulmonary embarrassment, will serve to prevent the incoming of oxygen and electricity, the out-

going of carbonic acid and stale albumen, and the perfection of the blood-making process.

But such a conformation is easily corrected and wholly eradicated. The child of consumptive parents should be taught that this conformation may be in its organization, and that a life and a course of conduct may be adopted that will oppose and finally correct it. It should be taught in early life the lessons of courage, fortitude, character, choice, ability, independence, energy, and determination. It must be taught to go out through the will, and not to remain in sensibility and intellect. They are good in their place, but the person must not end there, but must go on to ability, to character, to action, armed by a will of naked insight and energy. Acquisition merely, is debilitating, but coupled with, rather ending in action, is life-giving. A tide of sufficient volition from the soul passing into the brain, and into the motor machinery, will correct the most consumptive conformation, and make it impossible for tubercle to ever occur in the tissues. The troop of brave qualities that legitimately proceed from a free will, will consume the consumptive tendency, as certainly as fire will dry stubble. Nothing is more favorable to the spread of tubercle than a soul without force armed with insight and emotion. To prevent, check, and cure consumption, Psyche must be invoked—*personal* qualities must be established. The age in a consumptive sense wants character. He who loves struggle, effort, friction, lightning and thunder, will never die in mid life with an old cough. The mind either favors or antagonizes life. If the latter, then external causes are superior to the vigor of the body, but if the former, then the vigor of the body is equal to any emergency.

IS CONSUMPTION CONSTITUTIONAL OR LOCAL.

NATURALLY there are but two outlets for the escape of stale, unvitalized albumen in the body. They are the cutis and the lungs. Every expiration and perspiration of a healthy body contains old, dead, defiling albumen. But if the functions of

the skin and lungs are interfered with permanently, then this pernicious material accumulates in the blood, and defiles it. This defilement goes on until the vital processes of blood-making, are intercepted, and then the chyle which should have been manufactured into good blood is but partially developed, incompletely vitalized, but poorly passed through its vital career, and is unfit for nutrition and secretion. By this interference, the stale albumen gets fresh additions from the new blood, because of its faulty developement, and the two, both albumen, one dead from old age, and the other still-born, go the rounds of the circulation, occupying every vessel, and liable to be deposited at any weak point of the vascular system. The structures essential to the elaboration of arterial blood, are lacteals, lymphatics, mesenteric glands, lymphatic glands, the other blood glands, veins, and the aerating membrane. In these organs the blood is made. And these organs are not local but general. Again the vicious albumen not eliminated by the lungs and cutis, is retained and possessed not by a portion, but by all the vessels of the body, though the barrier to its escape is in the lungs and skin. The consequence is, that the entire constitution becomes contaminated—tainted with tuberculous material, also pervaded with that inability that prevents the construction of good blood. The disease then may be said to be constitutional, and not local, unless the skin and aerating membrane may be considered local. For as soon, in the career of consumption, as respiration and perspiration are firmly established, no matter by what means or by whom, will the further generation of tubercle cease, will the system improve in vigor and flesh, will tubercles be absorbed, will ulcers heal, and never before. Hence it may be said, that consumption is both local and constitutional. The first difficulty is in the lungs and skin, and this gives rise to the general taint. Obviate at any time the anæmic state of the skin and the hyperæmic state of the pulmonary membrane—break down the barriers between the air and blood, let them meet and fondly embrace each other, at the skin and lungs, and consumption ceases at that moment. Here is the mitigation, the relief and the cure, Nothing ever cured a case of consumption, in fact, but atmosphere loaded with fresh oxygen and electricity. Faith in these two elements

may be unbounded. The great object is to get to them, to remove the barrier that erects itself between blood and air. And that medicine that will so modify the skin and lungs, so as to enable the blood and air to meet fraternally, is the means to be used, and the one to be relied upon for the cure of consumption. Though the air cures, medicine enable the patient to obtain it. To lift the blood from the lungs and send it to the skin, and there maintain it, are the indications in all cases. That will break down the barrier that now intervenes between the blood and air, and enable them to rush with all fondness into each others arms.

IS CONSUMPTION CONTAGIOUS.

VIRUS, in some form, gaseous, fluid or solid, is necessary to render a disease contagious. In phthisis there is no virus. The disease is not dependent upon the reception of a reality, but dependent upon the fact that enough of oxygen and electricity are not received. In consumption reception and elimination are both wanting. There is not enough of fresh, but too much of stale material. What should be discharged by the superior emunctories is retained and lodged in the tissues. No virus escapes from the consumptive. It is not contagious. But while the disease is not infectious, the habits of the consumptive are more or less catching. Such a patient inclines to the house, to the warm room, to inaction, to lounging, to stooping, to lazy positions, to irregularity of eating, drinking and sleeping, to mental weakness, to being waited upon, to do-nothingness, to morbid sentiment, to impotent thought, to illogical inference, to fretted volition, and to indifference of character. We assimilate to that which is about us. And we may acquire the ways of the consumptive. And by such associations mischief may result to the healthy, by taking on such habits as lead to mental and physical debility, and then the barrier between air and blood will be erected, and the groundwork laid for the consumptive career. Again, the consumptive likes confinement, the fire, the bed, and the lounge. Air if not impeded, like water, will purify itself by its own motion, but

when imprisoned, it stagnates, and becomes unfit for respiration. Such places are the ones that the consumptive chooses. His whole nature seems inclined to places that are filled with impoverished and contaminated air, and to unsymmetrical ways. And he who accompanies the consumptive, subjects himself to these injurious circumstances, and they favor the reduction of vigor and the establishment of weakness. In this sense is consumption contagious, but in no other.

PHTHISIS CAUSED BY COLDS AND INFLAMMATION.

COLDS will run through their stages, generally, in ten days. Inflammations have their limitations. Nothing is equal to the production of tubercle that does not cause a permanent weakness of the skin and aerating membrane. This is not possible for cold nor an inflammation to do once in a thousand cases. They are both local. They are of short duration, and they rarely result in consumption. If consumption ever follows them immediately, it is because they were equal, during their career, to the permanent enfeebling of the skin, to the permanent engorgement of the air-passage, and to the erection of a permanent barrier between the blood and air. Any agent that can persistently intercept the meeting of the blood and air at the lungs and skin, is sufficient to cause consumption. This result is sometimes affected by colds and inflammations, not as a rule, but as an exception. Colds and inflammations are local and generally of short duration, but they may be intense and protracted, then perhaps, they may prevent perspiration and respiration sufficiently to cause the tubercular diathesis.

THE CURABILITY OF CONSUMPTION.

THIS must be determined by post mortem examination; by the stethoscope; by experience; by the science involved in the immediate cause of phthisis; by the science involved in the

nature of consumption, and by the science involved in the remedy for the disorder.

Post mortem examinations, in any quantity, prove that small and large ulcers in the lungs heal as in other tissues. Sound cicatrices in the lungs are met with by every physician who is familiar with the dissecting room.

The accurate auscultator can note the formation and disappearance of ulcers in the lungs, as certainly as he can upon the extended surface.

The experience of physicians of sound judgment, who are not experts with the scalpel and sthethoscope, is that consumption has been cured and may be again.

The science involved in the cause, nature and remedy, instead of opposing the view that consumption is curable, favors and demonstrates that it is curable.

The state—the morbid condition, that has to be fought in consumption, is the same in all of the stages. It is not one state in the First stage, another in the Second, and a different one still in the Third, that the physician has to combat, but he is called upon through the entire course of the disorder, to remove the barrier between the blood and air. Do this in the First stage, and consumption is cured; do this in the Second stage, and consumption is cured, and do this in the Third stage and consumption is cured. The stages differ only in degree. The local complications of the second and third stages, need not trouble the physician at all, if he can remove the barrier between the blood and air, at the lungs and skin, so that they will mutually interchange their constituents, according to their inherent laws. If the pernicious habits of the mind are neutralized; if invigorating ones are substituted; if the hygeianic ways of the body are established in all their abundance, richness and geniality, and if such medicines are given as will extend and hold the blood permanently to the periphery, then will consumption yield before the conservative power of the system, as certainly, as the snow banks of winter will melt and disappear before the breath and smile of coming spring.

Rule is always stronger than misrule. Truth is mightier than error. God is always the majority. This is so in physics as in

metaphysics, tubercle as in ethics. In correct mental habits and conditions, in proper bodily habits and conditions, and in medicines that will co-operate with and uphold such habits and conditions, are the means that can mitigate, relieve, and cure consumption. And he who knows the cause and nature of tubercle, and the properties of medicines, can specify the individual means.

PREVENTION OF CONSUMPTION.

A KNOWLEDGE of the prevention of consumption must be more precious than gold to parents. For childhood, youth and early maturity are the fruitful seasons for consumption. While we are under parental care, and within reach of parental council, is the time when the foundation of consumption is generally laid. And by knowing what are the remote causes of consumption, and what are the means for the prevention of it, the parent may obviate nine-tenths of the woe caused by this devouring disorder.

The human Will is as much a Force in nature to be used and felt, as Electricity or Caloric. It has a specific work to do, and it must do it, or sink to the earth for a footstool for those who will do it. If it does not perform its legitimate function, then it either dies outright, and mingles with the sand, clay, and loam under our feet, or it lingers out a miserable existence as a physical or mental slave.

From the first breath to the last, this celestial Force should peer, yes regally look through feature, gesture, voice and motion, so sufficiently, so individually, as to make itself felt as a Power to be respected, as to make itself felt as Power equal to any similar one, as to make itself felt as Power superior to any irresponsible force in all nature. Man must look upon the elements, upon all nature below him, as a means to be used by him in his career of progress and authority, and upon all other men as merely his equals. Such a Will passes through life, like an orb through the heavens, with weight, influence and impetus, superior to any impediment that may happen to be in its path. Such a Will loves darkness and the glare of noon; it courts the

winds and the storms; winter and summer, spring and autumn, are alike welcome; the wilderness presents charms to it; bold adventure is food to it; self-reliance gives it joy; the current, tide and struggle of life are sweet to it; duty, responsibility, labor and care are what it most relishes; misfortune only doubles its energies; opposition gives point and edge to its actions; the evil of others brightens and strengthens its principles, and the follies and weaknesses of the world serve only to erect higher its own self-hood.

This force, armed with insight and spontaneity, or only by the nobleness that is innate in all, expressed in all that a person thinks, feels, and does, is *the* prevention for the whole world of will-be-consumptives. It is as certain to prevent Consumption as frost is to prevent Yellow Fever.

To be more specific, practice through life, Industry, Economy, Enterprise, Sagacity, Temperance, Courage, Fortitude, Independence, Toleration, Sociability, Vivacity, Gallantry, Taste, Honor, Justice, Charity, and Piety. These virtues will make a practical cordon that will protect body and mind from all foes visible and invisible. Such a brood of celestial qualities flocking into the cerebrum and from thence rushing into the 500 muscles of volition, hourly, so abet and co-operate with Life as to preserve body and mind from every stale particle, nocent action, and lurking foe.

Every constitution that is lacking in this *personal* force, is liable sooner or later to be overtaken by consumption. Of what value is a mere pile of dirt in the shape of a man, unless he has running through it this personal thunder-bolt—the Will! Infuse that into one hundred or two-hundred pounds of lime, carbon, oxygen, hydrogen, nitrogen, and a few other elements, and you have something worth respecting and something that will command respect. It is this force that snaps parental control at eighteen and twenty. It is this force that makes character everywhere. It was this force that made King Phillip, Jackson, Luther, Cromwell and the heroes of every age. It is the magnetism in man. It is this that gives one man control over another. It makes the honor and electricity in men. Instead of subduing this force of the soul, this red energy, this flame and sword of

the immortal part, it should be fostered and encouraged. Teach the coming man that he is the immediate and commissioned Agent of Being; that he is backed by the Eternal in the midst of the temporary, supported by the Infinite while surrounded by the finite. It is this force that makes us talk so much of Liberty, for it is free; and being free, it has duties, one of which is to keep the blood freed from tubercles, by living a life of such positiveness as to repel every vicious thing and foolish practice.

A negative individual is not equal to the elements, currents, and cares of life. Such a person is swept away by them, as the swollen stream does flood-wood. The responsible force should be always superior to the irresponsible. And it may be so by proper education. Feeling is not the end of man, nor is thought, but action. Man wants skill not lumber. He should be an ability, not a ware-room. But many are less than their surroundings. Nature then out of man is major to that which is in him. The life of the body is antagonized by what is around it. A warfare is continual between the body and the world around it. And one will be master. Man has the privilege of being the major force, and can keep at bay any atmosphere, wind, heat or frost. But to do so he must send the will into every nook and corner of his being. His own constitution must not be a wilderness, an unexplored region to his will. Groups of muscles must not lie on his bones through life without his knowledge, and without his occupancy. He must energize his entire voluntary system, and by that means, he can co-operate with Life, so that longevity with all its best consequences may be fully realized.

Such a vigor will always keep the blood in crimson currents rushing up to, through and off from the skin; will keep the blood from accumulating upon the aerating membrane will; keep open the million ways to oxygen and electricity, and will keep open the channels for the escape of old acids, alkalies and stale albumen.

THE REMEDY FOR PHTHISIS.

This is two-fold. It is hygeianic and medicinal. It is a grave disorder, and the resources of both the art of health and the art of disease have to be taxed to obtain the remedy that can disarm it of its consuming energies. The disease is no Indian palisade, but a real Russian Malakoff. Hygeian and medicine must be invoked with great judgment and skill. Together they contain the remedy for consumption.

When inflammation, or fever, or suppuration, or ulceration, or night sweats, or irritable stomach, or irritable bowels, or severe cough, or severe pain, or difficult breathing, or rapid pulse, or frequent respiration, occurs during the career of consumption, then medicine will be required, to meet these side issues in its career of mischief. Besides, the legitimate disorder will demand a steady, persistent course of medication.

The great indication to be filled in every case of consumption is to remove the barrier that intervenes between the air and blood at the lungs and skin, and to permanently protect them in their mutual exchanges. Accomplish this, and the disease vanishes, like fog before the ascending sun.

HYGEIANIC REMEDY.

THE body of the consumptive is like the worn-out lands of Virginia. It is sterile not naturally, but by excessive croppings. And it must have a season or two of fallow. The first thing to be done is the laying aside of all business, except that which pertains to the restoration of health, for one year at least. Whoever gets overtaken by tubercle, may set aside all else for a twelve-month, but the application of the remedy necessary for the restoration of health. The four seasons must be laid aside for that one object. If rosy health comes sooner, the recipient is fortunate. Whether the patient takes medicine or not, devote the whole of the coming year, from the present moment, to the res-

toration of health. Time is necessary for recovery whatever is done; besides, the consumptive patient must know at the beginning, that the remedy can only in part be bought, that a part must be faithfully worked out by itself. A draft on your own will is demanded just as much as one upon pills, lotions and inhalations. Both are required, and persistently too, to extricate you from the quicksands that are rapidly yielding under your feet. The gain wanted is in vigor, good breath, strong pulse, symmetry and flesh, and not in money, nor lands, nor place, nor learning. All the energies you have should be bestowed upon your impoverished constitution, during the coming following year.

Speak with definiteness and volume. Consume all the air possible in speech. Expel each word by a copious expiration. Never speak quick. Cultivate the explosive habit of speech. Let a current of air expel each word, not hastily nor sluggishly but with weight, volume and sonorousness. Avoid a high note; keep upon a base key. Habituate yourself to slow, copious, regular breathing. Give no countenance to despondency. Laugh in the midst of hemorrhage. Cheer is a better stimulant than the best of wines. It will send the blood at once from a breach to the remotest part. Be listless in nothing. Act from your innermost force. Do the least thing with enthusiasm. Take a lively interest in whatever you do. Let dispatch be a marked characteristic of all you do. But avoid hurry as you would a gaping precipice. Move with importance and sufficiency. Be a power. Keep the company of courage, fortitude, energy, and cheerfulness. They are the choicest comrades and the truest friends. Be no bravado nor improvident, but if ill-luck overtakes you, be its master, and never let it jump upon your back. Fear nothing but wrong; treat cough, hemorrhage, emaciation and sweat, as you do the peccadilloes of a friend. Be not alarmed by them, but simply harbor and tolerate them, until you can conveniently rid yourself of them. Defy them not by swagger, but by a manly, valiant, superior life.

Between suns take exercise. Use the day in consuming your muscles. But yield the night up to respiration and nutrition.

Suspend the mind and its instruments as night approaches, fold your arms, and resign yourself to the care of Life. Give to Nature every authority and opportunity during the absence of day. The rule of the body is waste and reparation. Day light and the former should be linked, and night and the latter should be coupled. Though the consumptive is everywhere marked by emaciation, yet he demands muscular waste from his own will as much as the laborer. But in exercising, there are two rocks against which he is liable to dash his bark. They are extreme fatigue and chilliness. If possible keep without their reach, if not possible, be calm, cool, self-possessed, and say to them, Do your best. When warm by exercise or otherwise, do not cool off suddenly. Here is a pitfall that engulfs hundreds. When warm, for the sake of coolness, do not sit down in the shade, nor upon a stone, nor upon the ground, nor stop in a current of air, nor let the wind blow upon your back, nor drink cold drinks ; but keep exercising moderately, or put on sufficient clothing to protect the system, or go into a warm room, or do whatever will prevent a sudden diminution of bodily warmth. Let the excess depart gradually. As eating is for reparation, and exercise is for disintegration, the exercise should always precede eating. If you do not exercise, let your meals be correspondingly light. The rule for eating lies in the use of the muscles. If the muscles lay the long day idle upon the bones, then let the stomach lay the long day idle in the abdomen. Consumption of food should be measured by decomposition of flesh by action. Exercise every day unless inflammation is present ; if so, keep your bed until it has been resolved. Let your exercise consist of walking, running, riding in carriage or on horse-back, playing, going up hills and stairs and using the arms and lower limbs, in all possible ways, in doors and out. Remember that you have five-hundred locomotive engines immediately under your skin that you can control by a nod. Remember also that the action of these sources of force, calls blood into them from the central organs, causing a gravitation of the circulation from the center to the periphery, and as the blood rushes into the muscles as they act, the blood is induced to go to the skin at the same time, for the small blood vessels that go to the skin, come from the vessels

that feed the muscles immediately beneath the skin, and this flow of blood to the skin during muscular exercise, favors perspiration, the organ of which is literally dying for want of blood. If then you tax each of the five-hundred muscles vigorously a number of times every day, you thereby unload the lungs and every other central organ, of their excess of blood, and pour it into the muscles and the skin, where there is a dangerous deficiency. By exercise then you can establish a real equilibrium of the circulation, and restore the tint of health to the pale cutis. Do not labor, but act and exercise from choice and desire. In what you do, preserve entertainment, satisfaction and interest. Do not act against your will, but with it. Hunt much; fish much; swim in the proper season; sing often if there is any music in your larynx upon a base key; talk for the sake of entertaining whomsoever you may be with; make it a duty to cheer and animate others; never allow others to sympathize with you by manner or conversation, but if at all by doing something for you; let no one converse with you upon your illness except your physician; horse-back riding may be indulged in, on all possible occasions; be not afraid of the air; it is what you must have or you will never recover. Much better be chilled to the marrow, than not have the fresh air and exercise. If you cannot avoid fatigue and chill, when you exercise and take the air fresh from the atmospheric ocean, take them anyhow whatever the consequences. Do anything that is pleasant and that enlivens the feelings without prostration following. Cheerful employment is as good as food. Amusement that does not enervate, in all its variety, should be allowed and encouraged.

Temperance in all things should be the watch-word of him who is afflicted with tubercle, but especially is it demanded in sensual pleasure. Excesses here are too often the remote causes of consumption.

Be regular in your sleep. Do not sleep before sun, nor after sun, nor between suns. To the consumptive, night is for repose, and day is for action. After the regular sleep of the night is over, do not dose and linger in bed and importune Somnus, but

rise, take an air-bath, adjust your garments and seek the air of the new-born day. As soon as you touch the couch, forbid all thought. Say to fancy, thought, memory and feeling, Be still. Hush the mind. Open the doors of the mental chambers and invite into them resignation, tranquility, repose and slumber. Place at once a recently plucked poppy leaf upon each eyelid, and an equal barrier at the gate of each of the other senses. Yield all up to Nature, and let her have supreme sway. The entire sensitive and voluntary man must be suspended. Let Life only be manifested until the East presents you with the new day. Night is the time for nutrition and reparation. And if possible, never intercept them, for they are the great healers. The bedroom, all things in it, and all about it, should be as neat as the art of the chamber-maid can make it. Banish feather beds, hair mattresses and comforters. Fresh air should come into and go out of the bedroom at its leisure. Moving air is demanded all the time, night and day, over the nostrils of the consumptive. Let the sleeping apartment be well ventilated during the day and night. Never allow it to be wholly closed. *You are sick because you do not get air enough—not enough of oxygen and electricity.* Hence invite the air to you under all circumstances. It is laden with freshness, nutritiousness, stimulation and warmth. Do not fear cold-taking, but fear rather not enough air-taking. You have enough gross food, but you are lacking in insensible, aerial aliment, and you have too much pent up perspiration and expiration. Keep then the skin and lungs exposed to the freshest air. Atmosphere will furnish to the consumptive that which it is deficient in, and take away that which it has to excess and to its hurt.

Let the clothing be equal, easy, protective and comfortable. during the cold and cool seasons, wear woollen stockings, drawers, shirts, wristlets and mittens. And as soon as soiled change them. The inner garments should be changed weekly. Never sleep in any garment worn during the day. The night dress should be large and capable of easy removal. Boots are preferable to shoes because they protect the ankles. Remember that the wrists and ankles are vulnerable points. They possess no fat, and their

nerves and vessels lay immediately beneath the skin, so much exposed are they, that the atmosphere readily reaches them and prevents them from carrying the warm blood and the nervous force into the hands and feet. For this reason the wrists and ankles should be carefully protected. Instead of wearing wrist-lets, the tops of gloves may be made long so as to embrace the whole wrist. Whenever your garments become wet by exposure, keep exercising until you reach your chamber and then change them, or until they become dry. If chilly at any time and you are near a fire, turn your back to it and heat it thoroughly. Heat applied to the back engenders nervous action, but cold applied to it lessens nervous action. If you are much influenced by the changes of the weather, or if you are exposed to the night air, wear a doe-skin shirt and drawers. It is more protective than woollen, and sufficiently porous for the evaporation of the skin. Take great care of the feet. They are very fond of attention. Wear boots with thick soles; change the socks often and frequently, use the hot salt water bath, being careful to raise the temperature of the bath at its close to its highest bearable point.

The human body contains two sets of organs, viz., involuntary and voluntary—one set exclusively under the reign of Life, and the other under that of Life and the Will. And a rule obtains in their action of great value, viz., the majority bear sway. If the majority of the organs are healthy, then will their healthy influence extend into the minority organs that are diseased; but if the majority are ill, then will their evil influence reach out into the minority that are well. In proportion to the number of healthy organs in disease, in that proportion is the chance for the return of health, also, in proportion to the number of diseased organs in any malady is the fear of death.

The organs that are subject to the will are the five senses, the cerebrum, the entire mind, the five-hundred muscles, the mouth, the stomach, the bowels and bladder in their excretory action, the reproductive organs, the lungs as far as the kind of air they receive, and the entire skin. The two organs that are primarily at fault in consumption are directly under the control of the mind—the lungs and skin.

And as the involuntary organs lie immediately beyond or within the voluntary, and are indirectly reached by the latter, a large majority of the organs of the body may be acted upon by the will. And if it is sufficiently enlightened to correctly influence and condition the organs within its reach, the majority-rule may be placed among the voluntary organs, and also among the normal, and enabled to extend gradually into the minority organs that are a prey to disease. This division of the organs, and this rule that obtains among them, should be understood by the consumptive, and a life should be quickly put in practice calculated to obtain all the advantages therefrom.

Prominent among the organs within the reach of the mind, is the skin. It is the body's grand envelope. In it are situated the means by which the body may be superior to any change of the atmosphere. The war with the elements must be fought by the skin. Permit its sentinels to sleep, and the atmosphere advances upon the body with speed and force, but keep them on active duty, keep them awake, vigorous, in concert and abreast, to the coming air, whether hot, cold, wet, or malarious, and they are equal to the maintainance of the supremacy of the body.

Among the means for the preservation or restoration of cutaneous action and vigor, are baths of the tonic quality. Of these, the air, hot water, salt water, acid, astringent, and alcoholic baths, are best. Besides, dry friction from any means, with the hand, coarse woollen mitten, coarse flannel, coarse towel, hair mitten, brush mitten or flesh brush, is excellent. The coarse woollen or brush mitten is to be preferred for rubbing the skin. The acid and salt bath may be used alternately every other night. The air bath should be used night and morning with universal friction. Debility of the cutis is prominent in consumption, and the very best means faithfully and perseveringly applied, will be required to overcome the paleness and weakness of the surface. Warm water is debilitating; cold water is more so unless reaction immediately follows; vapor baths are quickly stimulating but are very evanescent. Avoid all extreme action in any organ. Permanent effects are wanted. The consumptive cannot recover in a day nor by a charm, but by the slow process of nutrition and secretion. Too much attention cannot be paid to the spine,

especially the cervical and dorsal portions of it, in the form of friction.

Eat generously at breakfast and dinner, but sparingly at supper. Quantity injures ten times to quality once. Avoid both. Reject those dishes that experience shows are hurtful. Warm drinks are preferable to cold. Food should be well cooked. Chew your food. Be a long time eating and spice it well with anecdote, legend, pun, wit and humor. Extract fun from every possible object. Eat cautiously after fasting, for the appetite then is not a reliable guide. Use coffee at breakfast if you desire it; use cider at dinner with a little white mustard seed and horse radish in it, whether you desire it or not; and use black tea at supper if you choose. If you use milk, scald it first, and use it warm. Cold milk is too often injurious. Fresh milk before it cools, is invaluable. Butter-milk and sour-milk, because of their ease of digestion are to the consumptive the best possible food. Wild meat is preferable to tame. Beef and mutton are next to wild meat. Pork may be wholly discarded. Eggs broken in'to hot water and slightly cooked may be often used. Sweat cream, fresh butter, warm yeast biscuit, light yeast cold bread, make good blood. Capsicum in the form of pepper sauce or fine powder taken with food, will much aid digestion, and will improve the appetite. The stomach of the consumptive will bear a little capsicum or cider or native wine at each meal. They may be taken for the stomach's sake in moderation. These are all the stimulants that are required except coffee and tea. The dinner will bear them better than the other meals. In this disease there is a tendency to cough at bed-time, and a full stomach aggravates this tendency, hence a light supper is particularly recommended. One dejection of the bowels each day *must be* maintained. In no instance neglect this. Habit and food must be the main reliance for this steady action of the bowels. If not sufficient, an aperient pill at bed-time, or a mild enema may be used. If the bowels are inclined to sluggishness, and they generally are, then use *opening* food. For this all the vegetable acids are good; butter-milk, slightly sour-milk, figs, ripe fruit, asparagus, tomatoes in all forms of preparation, the white of

the egg, with some hot milk, fresh meat, pie-plant, peach sauce, etc. If the bowels are too active, then use *binding* food. For this, use salt meat; dry food; black pepper and soft flour bread scalded in milk as warm as practicable; avoid those dishes used for the torpid state; hot brandy slings; coffee made of roasted corn, etc. The carrot soup is above price in the cool and cold seasons of the year. Broths, porridges, soups and teas are easy of reception, require no digestion comparatively, are diffusive and nutritious.

In consumption the whole mucous membrane is embarrassed, the digestive section however is not so much so as the pulmonic, yet sufficiently to hinder and often to prevent digestion. For this reason, all those dishes that the culinary art can reduce down to a fineness that obviates any further reduction by the digestive organs, will be valuable to the consumptive. The stomach should be taxed within its ability but never beyond it. If the stomach can digest solid food easily, the fluid dishes need not be used. But if it is incapable of digestion, then fluid food must be used. Let it be borne in mind that digestion is nothing more than solution of coarse food. Digestion divides the food to a minuteness that renders the particles less in size than the pores in the walls of the capillary vessels, and as soon as the food becomes thus fine, it leaves the digestive tube and passes into the circulation. And this reduction of food may be effected by the cook when the stomach is unable to do it.

Be regular at meals. Eat nothing between meals. Sufficient food can be taken at two meals to furnish the system with all that it can consume in its vital processes in twenty-four hours. Never eat to heaviness. If you do not exercise, then you must eat lightly. By exercise you consume the tissues, and then food is required to repair them. But if you do not wear out the tissues, then food will be required only in small amounts, sufficient to meet the necessary consumption of food by the involuntary action of the body. The days that you are compelled to pass in-doors because of bad weather or inflammation, be very guarded against eating as much as you do when you do exercise out-doors. Such days are generally intolerable, because caution in this particular is not practised.

Refined sugar in water may be taken often, especially when there is a tendency to cough. A glass of pure water well furnished with the best white sugar will often allay the irritation of the air passage, besides it is readily absorbed and circulated throughout the body, and used in calorification—a process alarmingly deficient in consumption. If alcoholic articles are used, the best is *old* whiskey. It may be used in hot water, or cold, or by itself with the best sugar. It is a quick stimulant; it passes at once to all parts of the system, and it contains valuable combustible material, which is much needed. When used, it should be for diffusive stimulation, for combustion, and for the aid it gives to digestion. Therefore use it after eating in moderation, and as a medicine.

The involuntary man is pervaded by Life, and the voluntary by Will. They are both efficient and potent forces, yet they are not independent of conditions and means. They require certain materials to work with, and certain conditions to work in. And when furnished according to their wants, they will produce a body full of vigor, symmetry and endurance. Reliance may be placed in them when thus furnished. They are then more than equal to any antagonizing cause, for they will vitalize and mentalize the body for years in the midst of changes, seasons and opposition. Too much confidence cannot be placed in Life and the Will as potent forces for the preservation and invigoration of the body when they are supplied with their genial means and conditions. The consumptive may rely upon them for his restoration as certainly as the chemist does upon chemical affinity for the composition or decomposition of a body. They are natural having Being for their support, and when surrounded with their proper circumstances they are fully equal to their intention and business. Faith here should be complete and works corresponding to it. If so, rosy health will return, and the coming years may be enjoyed in their richness.

MEDICAL REMEDY.

OBSTINATE costiveness, irritable bowels, severe diarrhœa, want of appetite, acidity of the stomach, irritable stomach, night-sweats, frequent pulse, rapid respiration, fever, inflammation, suppuration, ulceration, severe irritation in the air passage, cough, difficult breathing, and pain, are the conditions of the body that will more or less resist hygieanic measures, and if so, will demand something more efficient. Besides these local disorders, back of all of them, is the consumptive habit to overcome. Accomplish the latter, and the former will soon cease to torment. The pervading bad habit feeds and keeps up the local derangements, and they in turn aggravate and intensify the general cachexy. They encourage, and play into each other's hands. The removal of which will require medical aid.

PAIN :—If severe, it is the result of inflammation. Generally it is the consequence of pleurisy, but it may be from bronchitis, or pneumonia, or peritonitis. The inflammation of the serous tunics always gives severe pain; that of the mucous is not so severe, more dull and situated in the median line of the chest. When present, warm applications to the hands and feet embracing the wrists and ankles will be required. Mustard, salt and hot water, in the form of baths, or fomentations, will make suitable applications. Rest and the recumbent posture must be enforced. Mustard to the spine and over the breast sufficient to produce redness may be used. Camphorated spirits; alcohol and water; vinegar and water; essence of peppermint, ether and spirits of camphor in equal quantities; a layer of cotton; hot fomentations of hops, may be used to quiet pain from inflammation. Internally, in small and repeated doses, antispasmodics, sedatives, and diaphoretics should be employed. Narcotics as such should be forbidden. If used, they should be coupled with those articles that will prevent any other than an anodyne effect. The inhalation of volatile anodynes, and the vapor of antispasmodics and sedatives, in small quantities, occasionally repeated, often act most satisfactorily in giving ease.

DIFFICULT BREATHING:—This depends upon a variety of causes. For instance, closure of the mouth and nose ; submersion of the face ; want of air ; foul air ; dusty air ; polypus of the nose ; enlarged tonsils ; œdema of the larynx ; spasm of the larynx ; depositions in the trachea ; spasm of the bronchi ; depositions in the bronchi ; foreign substances in the air-passage ; enlarged thyroid gland ; cord around the neck ; emphysema ; œdema of the lungs ; tubercles in the lungs ; thickened mucous membrane of the air-passage ; consolidation of the lungs from any cause ; bronchitis ; pneumonitis ; asthma ; air or fluid in the pleural sacs ; water in the pericardium ; enlarged heart ; organic lesions in the heart ; aneurism of aorta ; tumors in the chest ; obesity ; over-distended stomach ; gravid uterus ; ascites ; broken rib ; pleurisy ; peritonitis ; hepatitis ; tight lacing ; and palsy of respiratory muscles. Any thing that intervenes between the blood and air, so as to prevent them from receiving from each other all that their natures require, will cause difficult breathing. The air will take from the blood certain foul products, and the blood will take from the air certain fresh products, and when these two offices are performed, ease is experienced, otherwise difficult breathing is experienced. And any of the above causes may interfere with this mutual action of blood and air. And a remedy for a given case will depend upon the cause.

COUGH:—This like oppression is dependent upon a variety of causes. Among them may be mentioned, enlarged tonsils ; elongated uvula ; pharyngitis ; chronic inflammation of and hardened wax in the ear ; laryngitis ; tracheitis ; bronchitis ; asthma ; pneumonitis ; tubercle ; hysteria ; whooping cough ; disease of the liver ; pleuritis ; a fat abdomen ; gastric derangements ; ascites ; gravid uterus sometimes ; phlegm and dust. The treatment will vary with the cause. When from phlegm it is a healthy eliminating effort. When from irritation instead of being sanative, it is exhaustive and often baneful. In the act of severe coughing, there is a great expenditure of nervous and muscular force, as much so as in chopping. The cough is often a leakage where are wasted nervous and muscular energies. And in no case of consumption should the nervous and muscular forces

be unnecessarily expended. They should be carefully husbanded. Exhaustion from any source is mischievous to the consumptive, and should be always avoided if possible. Besides, the cough when excited by an irritable mucous membrane, causes the air to pass over the irritable surface so forcibly and so bullet like, as to impinge and aggravate it. The cough when excited by bronchial irritation merely, in turn aggravates the irritation, and thus they feed and aggravate each other. The cause of the cough is then increased, and muscular and nervous force rapidly wasted.

When the cough depends upon an irritation caused by a gravitation of blood to the air passage, then the remedy for it must not be the same, as for morbid irritability, but that which will return the blood to the periphery and there maintain it. And this is the major cause of cough in consumption. Mere narcotics or anodynes to stop the cough when it is caused by an over-load of blood on the mucous and aerating membranes, are not only insufficient, but they are pernicious. Thousands have been engulfed here. Opium in such cases, though an apparent friend, is in fact a deadly foe, unless deprived of its narcotic properties by associates that suspend its deadening influence.

When the cough proceeds from a morbid sensibility of the air passage, the inhalation of volatile anodynes will be of great benefit. The inhalation of the vapor arising from burning or boiling sugar, also of burning or boiling resins and balsams, will often give much temporary relief. Relief from cough often follows sips of cool water sweetened with refined sugar, frequently repeated, at least as often as the irritation returns. Again, one half of the coughing is from habit. People cough because they can. It is a pernicious practice, unless compelled, and then copious inhalations of fresh air should be resorted to, and an effort of the mind made to stifle and suspend the cough. The constant habit of trying to remove the irritation by forcible coughing, cannot be too severely censured. The consumptive should obviate coughing as much as possible by every safe means, and especially by full, deep, copious, slow respirations, and by dint of will. Every hack, hawk and cough stifled by good breathing and by resolution, is worth more than a pint of the most precious cough syrup. This intervention of the mind to prevent coughing in-

stead of favoring it, according to the usual practice, frequently repeated, will in time grow to a remarkable power. The mind when disciplined in this direction, can be made to nearly control the cough. When air is forced repeatedly and severely out of the lungs over the delicate and irritable lining membrane of the air passage, by all the force of the entire thoracic apparatus, the mucous tunic will be roughened, fretted, chafed and irritated, but when cool air is inspired with deliberation, force and resolution, repeatedly, the existing irritation will be lessened, the whole passage will be cooled and soothed, the natural relations between the blood and air will be encouraged, and the blood filled with fresh oxygen and electricity will readily leave the lungs and seek the most distant parts of the body. Nothing more favors generous circulations, than liberal respirations. They constitute a pulmonic lever by which the blood may be lifted into every part of the body. Fresh air copiously breathed is the best cough syrup known. Avoid quick breathing. Teach the chest, to prolong the air in the lungs. Rapid respirations do not let the air remain long enough to aerate the blood. Prevail on the air to linger in the pulmonic cells, to enter them joyously, and to leave them with regret. As far as practicable sit, lie, stand straight. Symmetry of form and position, favor enlarged breathing. Distortion opposes every respiration. In walking keep the eye above the horizon, and compel the soles of the feet to guide you. When you are walking with the eyes *up* and the toes *down*, the chest will be thrown *out*, and the spine will be *erect*, and such states are the most favorable to full breathing and to general circulation of blood.

SPUTA.—There are six varieties, viz: the serous or aqueous, the mucous, the albuminous, the sanguineous, the purulent, and the tubercular. The sputa may be free, easy, adhesive, stringy, sticky and tenacious; or sweetish, brackish, nauseating and indifferent; or scanty, copious, and moderate; or opaque, transparent, translucent and clear; or flocculent, cloudy, ragged and cheesy; or lumpy, frothy, viscous, vitrious, spumous and nummulated; or white, yellow, purple, green, florid, rusty, streaked and

crimson; or floating, precipitated and suspended. The cheesy, ragged, nummulated sputa belong to the tuberculous variety.

INFLAMMATION.—This may be expected in either of the stages. It always introduces the Third stage, and the treatment calculated to cure the prevailing cachexy will anticipate inflammation. It is always a complication. The tubercular disease is not inflammatory, though inflammation is very liable to spring up during the career of tubercle. It may be bronchitis, pneumonitis, pleuritis or peritonitis. Medicines suitable for this disease should be of that nature that will hold the *vis a tergo* in check all the time, and that will augment the *vis a fronte*. The proclivity of the disease is to the diminution of the latter and to the augmentation of the former. The heart and arteries must be bridled, and the capillaries must be energized. Such medicines as will control the central part of the circulation, and that will augment the peripheral are the ones to be used not only for the prevention and cure of inflammation but also for the removal of the consumptive habit. When inflammation does occur in tubercle, food and exercise should be suspended, for they aggravate the central forces of the circulation, and tend to embarrass the inflamed part. The Third stage is introduced by inflammation, but the remedies adapted to the onset of this stage are not adapted to its termination. Inflammation is to be fought at the beginning, while ulceration is to be fought at the close. Nauseants and counter irritants for the first, and tonics for the second.

FEVER.—In consumption there is always a morbid irritability and an augmented rate of movement of the blood. The pulse is ninety or more. Physiological action *cannot* occur when the blood moves at that rate. Such a movement is morbid. There is not a cell in the organism that has its conditions met by such haste of circulation. The heart and arteries must be controlled, and the pulse reduced, not by destructive means but by diffusive and suspending means, to seventy-five beats per minute. Nutrition and secretion cannot take place while the blood is racing through the system. Fever always wars with nutrition and secretion. Cell action is impossible in fever, hence fever must be

combatted at every step in consumption. The entire treatment must anticipate fever and inflammation and obviate both if possible, for they are the red enemies of health. The type of this fever is remittent. Exacerbations occur at noon and evening. And such medicines will be required as will regulate the circulation, hold in check the heart and arteries, invigorate the capillaries, obviate fever, prevent inflammation, guard against flashes of heat, intercept chills, keep up secretion, favor nutrition, and preserve seventy-five beats per minute. Keep the blood moving slowly, calmly, and persistently and the consumptive is on the way of rapid recovery. If it cannot be accomplished wholly, approximate to it as nearly as possible. Do not though burden the system with drugs, in fact the senses should not know by the effects of them, that the system is under their influence. Treatment may be required for a year or more, and it should be of that nature that will admit of long continuence. Its action should be silent and insensible. All that can be done at all, can be done by the minor doses. Medicines, to cure, must be constitutional, persistent, silent and alterative. The treatment must regulate the heart, must secure the lungs from oppression, must determine the blood to the skin, must obviate capillary weakness, and maintain seventy-five beats per minute. Such a procedure will guard against fever, inflammation, irritation, chilliness, pain and cough, and favor the great processes of calorification, nutrition and secretion.

HECTIC.—This will occur in the Third stage. It is the result of ulceration or suppuration. Pus causes it. It occurs in bronchitis when the mucous membrane is inflamed to a degree that causes pus. Severe and protracted irritation may cause it. When it occurs in consumption it is caused by the ulceration of tubercles. For it, there should be joined with the anti-inflammatory, anti-febrile, and anti-cachectic treatment, a gentle, genial tonic course. Tonics oppose the suppurative and ulcerative process. They aid the *vis a fronte* in the diseased part; they enable the capillaries of the locality involved in the production of pus, to maintain their steady, onward currents of blood, not only up to the part, but through it, and off from it, and thus con-

tinuously. And as long as blood can be made to thus sweep through a part, suppuration, ulceration, and every other morbid action, will be prevented. Proper tonics when hectic is present, aid the small vessels in and about the part of softening, and thereby shorten the career and limit the extent of the ulceration.

NIGHT SWEATS.—From the beginning to the end of phthisis, the skin is feeble. Debility of the capillaries of the cutis is a prominent feature of the disease. Healthy perspiration is wanting. And as a consequence, transudation, not cell-secretion, is liable to occur in any stage. It may be slight or copious owing to the degree of weakness. And this debility, favoring the escape of the serum of the blood upon mechanical principles, must not be lost sight of for a moment. To obviate this waste of vital fluid, air baths, acid baths, hot salt water baths, alcoholic baths, astringent baths, and friction with woollen mittens, or brush mittens, must be used with judgment and perseverance. When it occurs the patient if able should leave the bed, remove the night garment, and apply friction with woollen mittens, the coarser the better, to the whole person, especially to the entire spine, and use the limbs in such ways as will call the blood quickly to the surface and extremities. The sweat is the result of weakness and to stop it, energy must be restored, and air, dry brisk friction and exercise have a tendency to beget in the skin the vigor to stop the passive leakage. Do not fear the night-air of your sleeping room when you are using brisk friction and exercising. They will arouse the skin and enable you to return to the bed and also to sweet sleep. If assistance is required for the application of the above means, secure it, if not the action of the patient should be had. If the night garments become moist, change them. At the same time be calm and cool and breath copiously and resolutely.

HEMORRHAGE.—When the mitral valve of the heart does not completely close the orifice between the left auricle and ventricle, as the ventricle contracts upon its contents, it being many times the most muscular section of the heart, the blood will not only pass forwards into the aorta but it will pass backwards into the

pulmonary veins, and this retrogression of the blood into the lungs, occurring at the same time that progression of blood from the right ventricle of the heart is going on to the lungs, will cause not only a stagnation of blood in the lungs, but accumulation, over-distention, and permeation. The blood filtrates into the air tubes and is evacuated by expectoration.

The mucous tunic of the air passage may by weakness, especially if the fibrine of the blood is wanting, allow passive hemorrhage. This variety of hemorrhage may occur in the First stage.

When the tubercles are numerous, they more or less cord the veins of the lungs, and prevent the blood from passing on to the heart. Blood by this means accumulates in the capillaries of the lungs; at the same time the right ventricle is advancing the blood into the lungs with all its force, and the two causes are sometimes sufficient to produce extravasation and hemorrhage.

Sometimes an ulcer divides a blood vessel and if the vigor of the vessel continues up to the lesion, which is not often the case, hemorrhage will take place copiously.

Severe blows and straining may rupture a vessel in the lungs and cause dangerous bleeding.

Again hemorrhage may occur at the lungs vicariously, or it may be a habit of the lungs, as it often is of the nose.

Whenever bleeding from the lungs does occur, the patient should assume an easy posture, apply something warm to the extremities; take salt water, and preserve mental calmness and quiet, carefully avoiding all solicitude and fear, remembering that cheerfulness is the most potent styptic known, when joined with warmth, coolness and the recumbent posture.

CONSUMPTIVE HABIT.—In this disease the general bad habit and not the complications, should receive the attention of the physician. The mere collaterals may receive attention until life ceases, and the disease will steadily advance. To cure consumption the tubercular habit must be met. The root of the disorder must be removed, and in doing it, the medicines given must not interfere with sleep, nor exercise, nor eating, nor enjoyment in any way. All the normal processes of the body and mind must be fostered. And to guard against interference with these great

functions, and at the same time administer medicines that have a direct tendency to break up the general cachexy, that will relieve the embarrassed lungs and fill the pale skin with warm currents of blood, a certain period of the day must be selected for taking the medicine. And this period is after the entire voluntary man has been suspended—after retiring to bed, when all thought and action are stopped, and Nature has supreme sway. After the patient is calm warm and quiet in bed, is the time to give medicine for the cure of consumption. Medicine for the cure of the constitutional disorder should not be given but once in twenty-four hours. Medicines for the improvement of digestion should be given after eating. Medicines for costiveness should be taken after retiring and only once a day. And as far as possible, the remedy for the cough, should be taken at the same time, though the complications of consumption, will require attention, as they occur, for they are local and temporary.

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